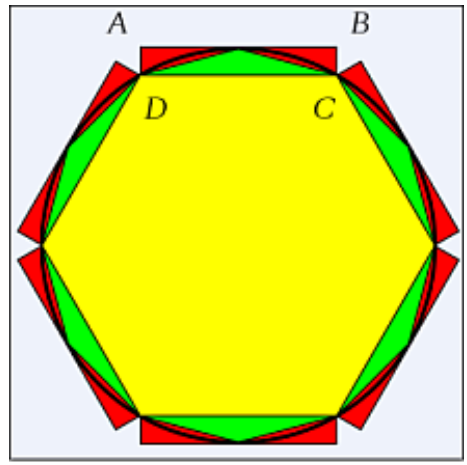
Every day we consider lots of real constants: e, π, $\sqrt{2}$, to name but a few. These numbers may or may not be rational (i.e. representable as a quotient of two integers), but it is always interesting to give close fraction approximations to them with small denominators and numerators. Arguably the most well-known result in history is from Liu Hui and Zu Chongzhi in China millenniums ago. The result $\pi \approx 355/113 = 3.141592920$ is correct to 7 significant figures, and has remained the most accurate approximation available for the next 900 years.

You are asked to write a program that finds for any input value the three closest fractions x/y, with $1 \leq x, y \leq 1000$, and x, y relatively prime (i.e. they have no positive common factors other than 1, so the fraction is in simplest form).



Liu Hui's Approximation Method
(Source: Wikipedia)

Input

Each input file contains multiple test cases, and each test case starts on a new line.

Each case contains one number on a line, each with exactly ten digits.

Output

For each input number, list the corresponding approximate fractions, ordered by ascending distance to it, as shown in the sample output. You can assume that no ties will occur using our test data.

You are advised to pay attention to the required output format. In particular, all output real numbers must have **exactly ten digits**.

Sample Input

```
3.141592654
66.66666666
333.3333333
```

Sample Output

```
Input : 3.141592654
    1 : 3.141592920 =  355 / 113
    2 : 3.141630901 =  732 / 233
    3 : 3.141552511 =  688 / 219
Input : 66.66666666
    1 : 66.66666667 =  200 / 3
    2 : 66.64285714 =  933 / 14
    3 : 66.69230769 =  867 / 13
Input : 333.3333333
    1 : 333.3333333 = 1000 / 3
    2 : 333.5000000 =  667 / 2
    3 : 333.0000000 =  333 / 1
```